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10/786,777	02/25/2004	Daniel Louis Bates	213187/00008	3714

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EXAMINER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/786,777	BATES ET AL.	
	Examiner	Art Unit	
	Kevin K. Xu	2628	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 January 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5,11 and 13-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,11 and 13-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 1-5, 11, 13-29 have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

Claims 1-5, 11, 13-29 are objected to because of the following informalities: Independent claims 1, 19 and 29 have been amended to recite "wherein said video linking system samples said video content at a sample rate which is a multiple of plural standard playback rates." Nonetheless based on applicant's disclosure (See paragraphs 52-53), it appears that applicant intends the sampling rate to be a divisor of plural standard playback rates or standard playback rates to be a multiple of the sampling rate (since specification discloses a sample rate of three frames per second relative to standard playback rates of 30, 15, etc). Thus, this will be the interpretation utilized by the examiner in the subsequent rejection. Nonetheless appropriate correction is required concerning the current claim language.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-3, 11, 13-17, 19-27 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rangan (6198833) in view of Feinleib (6637032) in further view of Courtney (6424370)

Regarding claims 1 and 19, Rangan teaches an image processing system for processing video content in a sequence of video frames and linking one or more pixel objects embedded in said video content to selected data objects in a sequence of video frames by explaining a system is provided for tracking a moving entity in a video presentation, the system comprising a computer station presenting the video presentation on a display as a series of bitmapped frames; and a tracking module receiving the video data stream. (Col 3, lines 26-29); said image processing system comprising a **video capture** system for capturing a frame of said sequence of video frames to be viewed defining a captured video frame by showing a recording function for accepting the positions wherein the pixel signature (defined in the art as a local neighborhood around given pixel) most closely matches the image signature as the true positions of the image entity in the next frames. (Col 3, lines 43-46) and in FIG. 1 input data stream 15 to tracking module 13 is a stream of successive bitmapped frames in a normalized resolution, required by the tracking module. (Col 5, lines 35-37) The authoring station can be based on virtually any sort of computer platform and operating system, and in a preferred embodiment, a PC station running MS Windows is used, in which case the input stream 16, regardless of protocol, is converted to a digital video format that can be interpreted and played back as a sequence of bitmapped frames. (Col 5, lines 37-43) Furthermore Rangan teaches a user interface for enabling a user

to select one or more pixel objects in said captured frame defining selected pixel objects. (Col 4 lines 11-35). Additionally Rangan teaches a pixel object tracking system, which includes a processor, which automatically tracks, said selected pixel objects in other frames. (Col 3, lines 26-50). It should be noted that it is well known in the art that a computer system would inherently contain a processor. Rangan also teaches said video linking system generating one or more linked video files, separate from said video content (Col 6 lines 48-51, Col 10 lines 53-66) by explaining when tracking element 29 (Fig. 2) is positioned and activated over an image entity to be tracked, a signature table is created and stored (Col 8, lines 40-42) and upon tracking element 29 being activated the tracking module creates a table or list comprising pixel values associated with a target number and spatial arrangement of pixels associated with tracking element 29. (Col 7, lines 40-43). Although Rangan does not explicitly state the generation of video files, it is inherent to the invention that a table or list, which is created by the tracking module and subsequently stored, must implicitly require files for storage function. Lastly, Rangan teaches through additional editing processes, a moving region associated with the image entity in a display may be made to be interactive and identifiable to an end user. (Col 6, lines 55-57). Rangan further teaches user interaction with such an image entity during viewing of a video can be programmed to provide additional network-stored information about that a entity to suitable customer premises equipment (CPE) adapted to receive and display that information (Col 6, lines 57-62) and such further information may be displayed, for example, as an overlay on the display of the dynamic video containing the subject image entity. (Col 6, lines 62-

64) It should be noted Rangan further teaches providing one or more links to predetermined data objects for each pixel object. (Col 7 lines 25-52, Fig. 2) Nonetheless, Rangan fails to explicitly teach said video linking system generating one or more linked video files separate from said video content, being configured to identify the pixel objects by frame number and location within the frame. It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize user editing processes and programmable capabilities of stored information about an image entity, as taught by Reagan, to identify the pixel objects by frame number and location within a frame because it is well known in the art that stored information about an image entity will include information about the image object's frame number and location within the frame in order to properly retrieve and display that information. Furthermore, these user programmable abilities allow advertisers, product promoters, or the like to present information to end users based on user interaction with an associate entity in a dynamic video display. (Col 6, lines 64-67) Reagan also teaches linked video files are synchronized with said video content. (Col 6, lines 48-51 and Col 10, lines 53-56) Furthermore Reagan teaches wherein said linked video files are configured so that selected locations in said video frames by a pointing device during playback of the video content can be linked with said data objects when said selected locations correspond said pixel objects. (Col 7 lines 35-52) It should be noted that the point device as taught by Reagan is a mouse. However, Reagan does not explicitly teach information **not embedded** in video content. This is what Feinleib teaches. (Col 3 lines 51-65, Col 9 lines 27-39, Col 11 lines 17-27) It should be noted that Feinleib teaches linked videos

files for enhancing content <u>separate from and not embedded</u> in video content by teaching enhancing content may reside in a viewers home and is synchronized by a closed caption script of the primary content with the synchronization **independent** of how and when the enchancing content or primary content is delivered to the viewer computing units. (Col 6 lines 23-30) Again, Feinleib explicitly teaches enhancing content can be **delivered independently** of the primary content and synchronized at the viewer-computing unit using the closed captioning script, which accompanies the primary content. (Col 9 lines 30-40). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of generating one or more linked video files separate from and not embedded in video content into the system of Reagan because enhancements to primary content can be timely introduced at desired junctures of the primary content. (Col 2 lines 14-20) However neither Rangan nor Feinleib explicitly teaches a video linking system which samples video content at a sample rate which is a divisor of plural standard playback rates. This is what Courtney teaches (Col 15 line 28-Col 16 line 24, Fig. 24, Col 16 line 51-Col 7 line 40) It should be noted that Courtney teaches 315 frames captured at approximately 3 frames per second (Col 16 lines 8-25) and it is well known in the art to utilize standard playback rates such as NTSC at 30 FPS and FPS at 12 FPS. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of sampling video content at 3 frames per second (a divisor of a plurality of standard playback rates) into the combination of Rangan and Feinleib because testing the quality of motion based event detection of differing frame rates (such as 3

frames per second) can be achieved and thus, providing more intelligent feedback regarding the occurrence of complex object actions such as inventory theft (Col 2 lines 59-63) can be realized.

Claim 29 is similar in scope to claim 1 except for the recitation of clustering the sampled video content with plural frames per cluster. Courtney also teaches this (Col 15 line 28-Col 16 line 24, Fig. 24, Col 16 line 51-Col 7 line 40). For example, it should be noted that Courtney teaches a 315 frame cluster captured at 3 frames per second. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings a 315 frame cluster sampled at 3 frames per second into the combination of Rangan and Feinleib because testing the quality of motion based event detection of differing frame rates (such as 3 frames per second) can be achieved and thus, providing more intelligent feedback regarding the occurrence of complex object actions such as inventory theft (Col 2 lines 59-63) can be realized.

Regarding claims 17 and 27, Courtney teaches clustering the sampled video content with plural frames per cluster. (Col 15 line 28-Col 16 line 24, Fig. 24, Col 16 line 51-Col 7 line 40). For example, it should be noted that Courtney teaches a 315 frame cluster captured at 3 frames per second. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings a 315 frame cluster sampled at 3 frames per second into the combination of Rangan and Feinleib because testing the quality of motion based event detection of differing frame rates (such as 3 frames per second) can be achieved and thus, providing more intelligent feedback

feedback regarding the occurrence of complex object actions such as inventory theft (Col 2 lines 59-63) can be realized.

Regarding claims 2 and 20, Courtney teaches sampling said video content at a sample rate of a divisor of 30 frames per second and 12 frames per second. (Col 15 line 28-Col 16 line 24, Fig. 24, Col 16 line 51-Col 7 line 40) It should be noted that Courtney teaches 315 frames captured at approximately 3 frames per second (Col 16 lines 8-25) It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of sampling video content at 3 frames per second (a divisor of a plurality of standard playback rates) into the combination of Rangan and Feinleib because testing the quality of motion based event detection of differing frame rates (such as 3 frames per second) can be achieved and thus, providing more intelligent feedback regarding the occurrence of complex object actions such as inventory theft (Col 2 lines 59-63) can be realized.

Regarding claims 3 and 21, Courtney teaches a sample rate of at least 3 frames per second. (Col 15 line 28-Col 16 line 24, Fig. 24, Col 16 line 51-Col 7 line 40) It should be noted that Courtney teaches 315 frames captured at approximately 3 frames per second (Col 16 lines 8-25) It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of sampling video content at 3 frames per second (a divisor of a plurality of standard playback rates) into the combination of Rangan and Feinleib because testing the quality of motion based event detection of differing frame rates (such as 3 frames per second) can be achieved and

thus, providing more intelligent feedback regarding the occurrence of complex object actions such as inventory theft (Col 2 lines 59-63) can be realized.

Regarding claims 13, 16 and 23 and 26, Courtney teaches sampling said video content at a sample rate of a multiple of NTSC and PAL (movie) frame rates. (Col 15 line 28-Col 16 line 24, Fig. 24, Col 16 line 51-Col 7 line 40) It should be noted that Courtney teaches 315 frames captured at approximately 3 frames per second (Col 16 lines 8-25) and it is well known in the art to utilize standard playback rates such as NTSC at 30 FPS and FPS at 12 FPS. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of sampling video content at 3 frames per second (a divisor of a plurality of standard playback rates) into the combination of Rangan and Feinleib because testing the quality of motion based event detection of differing frame rates (such as 3 frames per second) can be achieved and thus, providing more intelligent feedback regarding the occurrence of complex object actions such as inventory theft (Col 2 lines 59-63) can be realized.

Regarding claims 14-15, 24-25 Courtney teaches sampling video content at a sample rate of a multiple of NTSC, PAL, 15 FPS and 12 FPS frame rates. (Col 15 line 28-Col 16 line 24, Fig. 24, Col 16 line 51-Col 7 line 40) It should be noted that Courtney teaches 315 frames captured at approximately 3 frames per second (Col 16 lines 8-25) and it is well known in the art to utilize standard playback rates such as NTSC at 30 FPS and FPS at 12 FPS. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of sampling video content at 3 frames per second (a divisor of a plurality of standard playback rates) into the

combination of Rangan and Feinleib because testing the quality of motion based event detection of differing frame rates (such as 3 frames per second) can be achieved and thus, providing more intelligent feedback regarding the occurrence of complex object actions such as inventory theft (Col 2 lines 59-63) can be realized.

Regarding claims 11 and 22, Rangan teaches including a video playback application for playing back video content and said linked video files, wherein said video playback application is configured to determine if locations selected by a pointing device during playback of the video content correspond to said predetermined pixel objects and provide a link to a data object when said selected location corresponds to one of said determined pixel objects. (Col 7 lines 35-52) It should be noted that the point device as taught by Reagan is a mouse.

Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rangan (6198833) in view of Feinleib (6637032) in further view of Courtney (6424370) and Toklu (6549643).

Regarding claim 4, Rangan, Feinleib and Courtney do not explicitly teach said video linking system is configured to identify segment breaks in said video content. This is what Toklu teaches. Toklu teaches video summarization methods typically include segmenting a video into an appropriate set of segments such as video "shots" and selecting one or more key-frames from the shots. (Col 1, lines 34-37) It should be noted that a key-frame is defined in the art to be a frame used to indicate the beginning or end of a change made to the signal and therefore, an implied segment break. It would have been obvious to one of ordinary skill in the art at the present time the

invention was made to combine video summarization methods configured to identify segment breaks as taught by Toklu with the image processing system as taught by Rangan in order to reduce the number of images to one or more key-frames to represent the content of a given shot (Col 1, lines 43-45) and thus, to generate a video summary. (Col 1, line 33).

Regarding claim 5, Rangan, Feinleib and Courtney do not explicitly teach said segment breaks are determined by determining the median average pixel values for a series of frames and comparing changes in the pixel values relative to the median average and indicating a segment break when the change in pixel values represents at least a predetermined change relative to the median average. This is what Toklu teaches. Toklu teaches determining median average pixel values for a series of frames by showing computing an average of an absolute pixel-based intensity difference between consecutive frames in each segment, and for each segment, computing a cumulative sum of the average of the absolute pixel-based intensity differences for the corresponding frames of the segment. (Col 3, lines 61-67) Toklu also teaches comparing changes in pixel values relative to median average by explaining selecting the first frame in each motion activity segment of a given segment frame if the cumulative sum of the average of the absolute pixel-based intensity differences for the frames of the given segment does not exceed a first predefined threshold. (Col 4, lines 1-5) Lastly, Toklu teaches indicating a segment break when the change in pixel values represents at least a predetermined change relative to the median average by showing selecting a predefined number of key-frames in the given

segment uniformly, if the cumulative sum of the average of the absolute pixel-based intensity differences for the frames of the given segment exceeds the first predefined threshold. (Col 4, lines 5-9) It should be noted that a key-frame is defined in the art to be a frame used to indicate the beginning or end of a change made to the signal and therefore an implied segment break. It would have been obvious to one of ordinary skill in the art at the present time the invention was made to combine determining the average pixel values for a series of frames, comparing changes in pixel values relative to the average and indicating a segment break when the change in pixel values represents at least a predetermined change relative to the median average as taught by Toklu with the image processing system as taught by Rangan in order to measure a temporal activity curve for dissimilarity based on frame differences. (Col 3, lines 60-62) and thus, make possible in the system and method for selecting key-frames from video data. (Col 3, lines 51-59)

Claims 18 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rangan (6198833) in view of Feinleib (6637032) in further view of Courtney (6424370) and Toyama (5204749).

Regarding claims 18 and 28, neither Rangan nor Feinleib explicitly teaches automatically determining changes in the characteristics of said one or more pixel objects based on upon changes in lighting and automatically compensating based upon those changes. This is what Toyama teaches. (Col 3 lines 59-62, Col 13 line 40-Col 14 line 50, Fig. 9) It should be noted that Toyama teaches automatically detecting changes in the follow-up field of the object (automatically shifting color coordinate plane of values

(R-Y/Y) and (B-Y/Y) from points A0, B0, C0 to A1, B1, C1 [Fig. 9]). Furthermore it should be noted that Toyama teaches said changes in the color difference signals are based on (accounting for) changes in lighting and also permits stable follow-up by automatically compensating for variations in luminance of the illuminating light. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of automatically determining changes of one or more pixel objects based upon changes in lighting and automatically compensating for those changes into the system of Rangan because prevention of each of the points on the coordinate system from coming close to the origin or moving farther way from the origin (due to luminance of light varying with time) while the object is not moving can be realized (Col 15 lines 48-54) and thus, stably performing a follow-up operation in despite of variations in luminance of illuminating light (Col 3 lines 59-62) can be achieved.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin K. Xu whose telephone number is 571-272-7747. The examiner can normally be reached on 8:30AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Zimmerman can be reached on 571-272-7653. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KX

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2/8/08

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